



VARIOluxx

Portable, certified stack
gas emission analyzer

O₂ | CO₂ | CO | NO_x | NO | NO₂ | SO₂ | CH₄ | C₃H₈ | H₂S



**Combined NDIR/EC measurement
technology for precise measurement
results.**



VARIOluxx

First choice for smart gas analysis

The combination of infrared measurement technology and electrochemical sensors ensures versatility and reliable analysis, even of small measuring ranges. VARIOluxx – portable industrial measurement technology for high requirements!

With VARIOluxx, the simultaneous analysis of up to 10 exhaust gas components is possible

We offer you these special advantages:

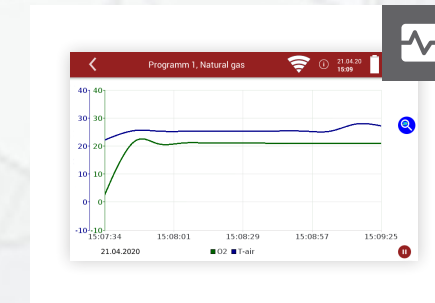
- Automatic measuring program with data recording
- Automatic zero point measurement for long-term measurements
- Lithium-ion battery operation, including gas cooler and measurement technology



acc. DIN EN 50379-1 and 2

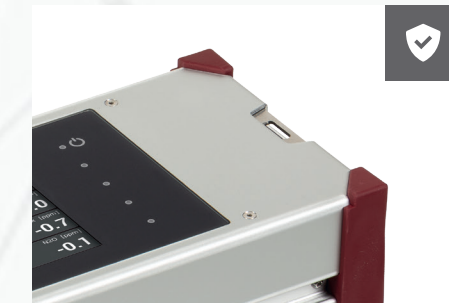
The device in detail

An overview of the special features



Practical touch display

High resolution 7" color display with graphical output of the measured values



Optimal protection

All-metal housing with soft bumper corners for the harsh industrial everyday use



Comfortable size

Very compact dimensions (W x H x D: 18" x 13" x 8") and light weight (22 lbs.) including nylon pouch, IP 42

On the go

Aluminum transport case with wheels, robust Pelicase or nylon carrying/protective bags



Operation and interfaces

Simple and clear

Operating options



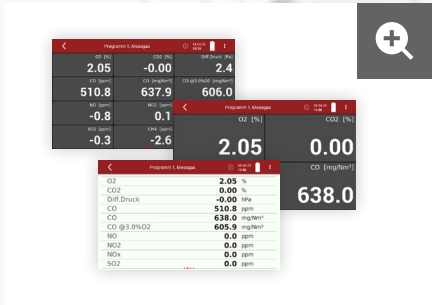
Touchscreen

Device operation via the 7" touch/swipe display, resolution 800 x 480 px, 750 cd/m²



Wireless

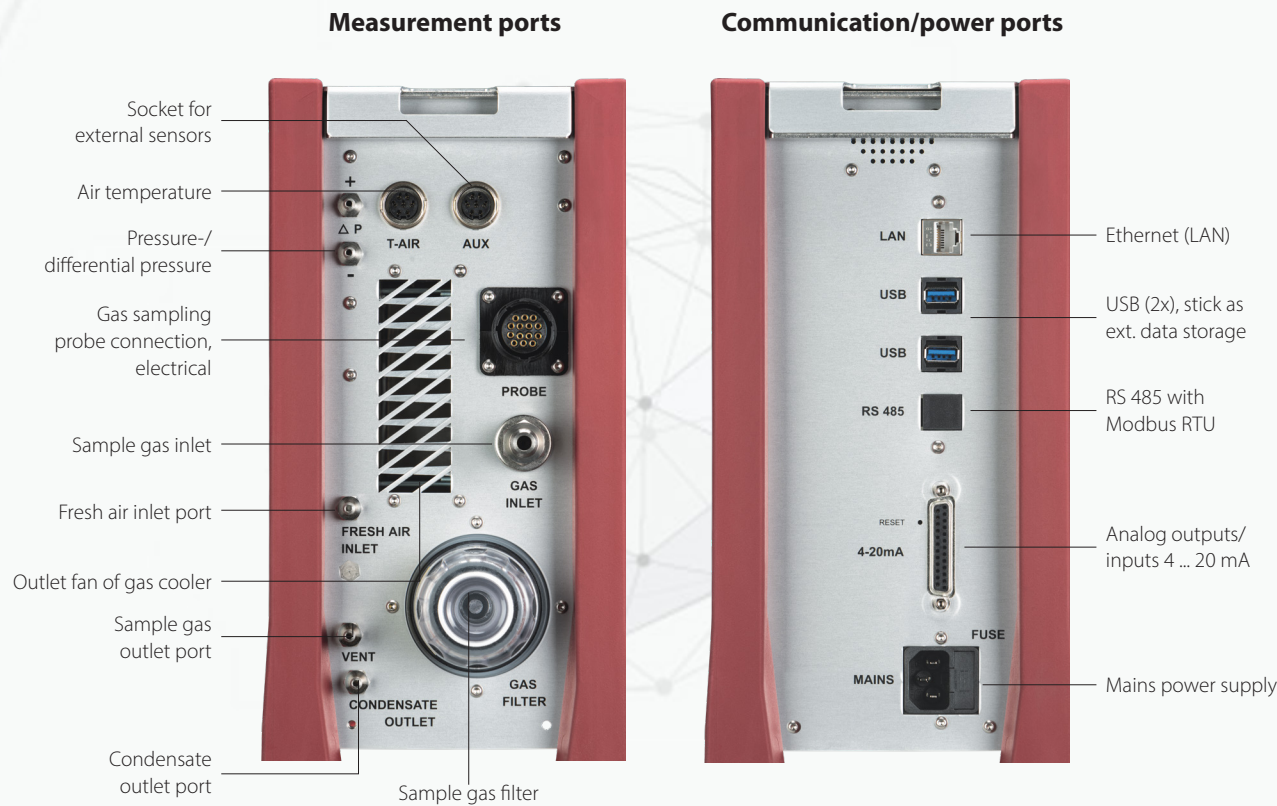
Operation via smartphone or PC via VNC connection, mirrored device display on smartphone



Zoom function

Variable display modes for the display

Connections and interfaces



Gas Conditioning

An overview

Gas sampling probe

- Robust industrial probe with heated hose
- Probe tubes of different lengths attachable
- Also possible for flue gas temperatures up to 2,012 °F
- Heated gas sampling line (9.84' - 16.4' or up to 164 foot)
- Exchangeable probe tubes up to 78.74" length
- Filters can be filled with different material, depending on the amount of dirt

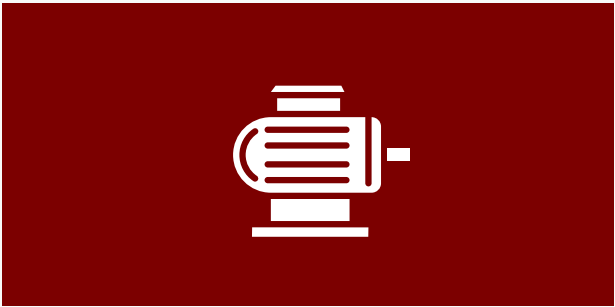


Probe for low dirt applications



Peltier gas cooler

- Automatic condensate pumps for drainage



Gas pump

- Powerful gas pump for fast response times

Data transmission & measurement

The technology

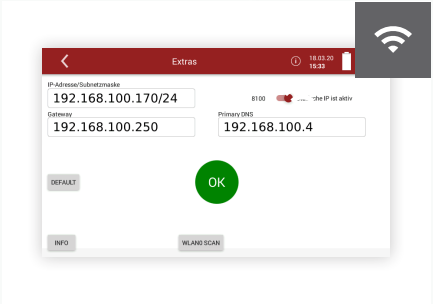
Data transmission

Fully equipped standard device:

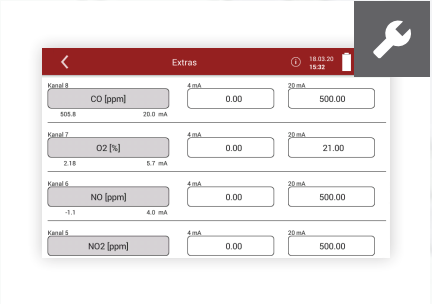
- Ethernet (LAN) TCP/IP
- WiFi
- 8 analog outputs 4 ... 20 mA
- 4 analog inputs
- USB (2x)
- RS 485

Internal data storage:

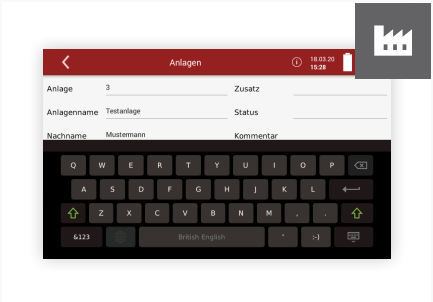
The huge memory with 400 MB offers space for thousands of facilities and data sets.



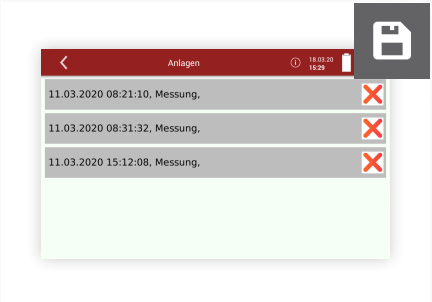
Set LAN



Set analog outputs



Manage facilities

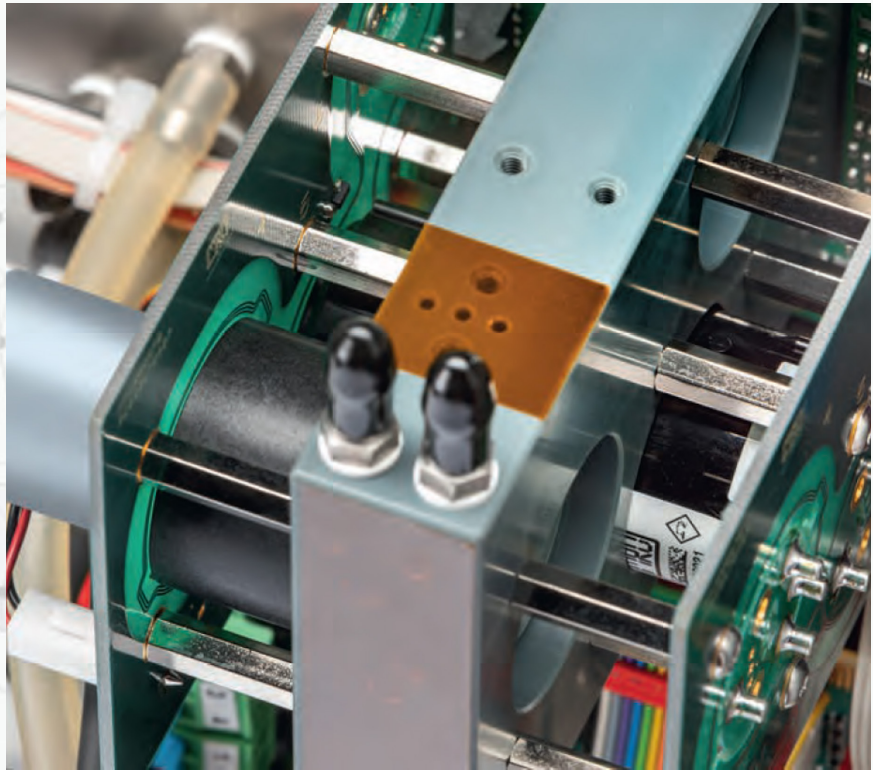


Save measurements by facility

High quality measurement technology

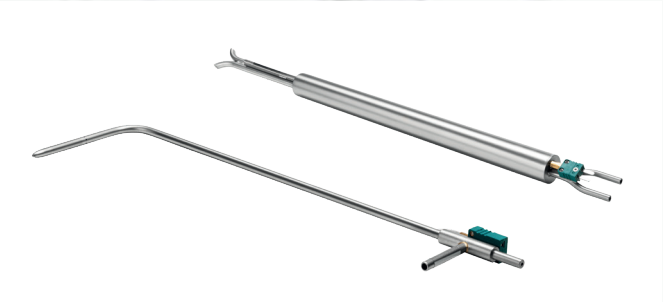
The combination of infrared measurement technology and electrochemical sensors of the VARIOluxx guarantees reliable gas analysis of small measuring ranges.

- Infrared sensors (NDIR) for CO₂, CO, CH₄, C₃H₈
- Electrochemical sensors (EC) for CO, NO, NO₂, SO₂, H₂S, O₂ (max. 6 sensors simultaneously)
- Paramagnetic O₂ analysis
- Differential pressure measurement
- Temperature measurement of flue gas and combustion air
- Flow rate measurement and volume flow calculation



Convenient Accessories

For more flexibility



Pitot tubes for flow velocity measurement

- L-type or S-type with temperature measurement (up to 1,832 °F), length: 12" ... 60"
- Measuring ranges from 3 to 100 m/s at a resolution of 0.1 m/s
- Additional calculation of the volume flow (m³/s)



USB WiFi adapter

- For wireless data transmission



USB to Bluetooth converter set

- Wireless long distance data transfer to PC/Notebook with MRU4win (up to 985 foot)



WiFi printer

- With lithium-ion battery and USB socket
- Suitable for 80 mm paper width



PC software "MRU4Win"

- Software for Windows to visualize measure data, manage, export and print
- Connect multiple devices at the same time and read out live values
- Logging and saving live values
- Database with customer contacts, attachments and manage users
- Export measurement reports as PDF
- Documents with customized logo and print out the address
- Read out data storage, save measurements, print and save as PDF

TECHNICAL SPECIFICATIONS

| GAS MEASUREMENT | | METHOD | REMARKS | MEASURING RANGE MIN/MAX | RESOLUTION | ACCURACY ** |
|-----------------|----------------------------------|------------------|---------------|-------------------------|------------|-------------------------|
| O2 | Oxygen (Long Life) | EC | TUV certified | 0 ... 25.00 % | 0.01 % | 0.2 % |
| O2 | Oxygen | PM | | 0 ... 25.00 % | 0.01 % | 0.1 % |
| CO | Carbon monoxide (low) | spec. adjustment | *** | 0 ... 500 ppm | 0.1 ppm | ± 2 ppm or 5 % reading |
| CO | Carbon monoxide (H2 compensated) | EC | TUV certified | 0 ... 10,000/20,000 ppm | 1 ppm | ± 10 ppm or 5 % reading |
| CO | Carbon monoxide (high) | EC | | 0 ... 2.00/10.00 % | 0.01 % | ± 0.01 % or 5 % reading |
| CO | Carbon monoxide | NDIR | | 0 ... 1,000/30,000 ppm | 1 ppm | ± 10 ppm or 2 % reading |
| CO | Carbon monoxide | NDIR | | 0 ... 1.00/10.00 % | 0.01 % | ± 0.1 % or 2 % reading |
| CO2 | Carbon dioxide | NDIR | TUV certified | 0 ... 5.00/40.00 % | 0.01 % | ± 0.3 % or 2 % reading |
| CH4 | Methane | NDIR | | 0 ... 1,000/10,000 ppm | 1 ppm | ± 10 ppm or 2 % reading |
| CH4 | Methane | NDIR | | 0 ... 1.00/4.00 % | 0.01 % | ± 0.05 % or 2 % reading |
| C3H8 | Propane | NDIR | | 0 ... 1,000/10,000 ppm | 1 ppm | ± 10 ppm or 2 % reading |
| NO | Nitric monoxide (low) | spec. adjustment | *** | 0 ... 300 ppm | 0.1 ppm | ± 2 ppm or 5 % reading |
| NO | Nitric monoxide | EC | TUV certified | 0 ... 1,000/5,000 ppm | 1 ppm | ± 5 ppm or 5 % reading |
| NO2 | Nitric dioxide (low) | spec. adjustment | *** | 0 ... 100 ppm | 0.1 ppm | ± 2 ppm or 5 % reading |
| NO2 | Nitric dioxide | EC | TUV certified | 0 ... 200/1,000 ppm | 1 ppm | ± 5 ppm or 5 % reading |
| SO2 | Sulfur dioxide (low) | spec. adjustment | *** | 0 ... 100 ppm | 0.1 ppm | ± 2 ppm or 5 % reading |
| SO2 | Sulfur dioxide | EC | TUV certified | 0 ... 1,000/5,000 ppm | 1 ppm | ± 10 ppm or 5 % reading |
| H2S | Hydrogen sulfide (low) | spec. adjustment | *** | 0 ... 50/500 ppm | 0.1 ppm | ± 2 ppm or 5 % reading |
| H2S | Hydrogen sulfide | EC | | 0 ... 2,000/5,000 ppm | 1 ppm | ± 5 ppm or 5 % reading |

| Other measurements | Method | Measuring range | Resolution | Accuracy |
|------------------------------------------------|----------------|-------------------------------------------------------|--------------------|------------------------------------------------------|
| Stack gas temperature (T _{gas}) | NiCrNi | 0 ... 2,012 °F (0 ... 1,100 °C) | 1 °F (1 °C) | ± 2 °F or 1 % reading |
| Combustion air temperature (T _{air}) | NiCrNi | 0 ... 932 °F (0 ... 500 °C) | 1 °F (1 °C) | ± 2 °F or 1 % reading |
| Ambient air temperature (T _{amb}) | NiCrNi | 0 ... 212 °F (0 ... 100 °C) | 1 °F (1 °C) | ± 2 °F or 1 % reading |
| Differential pressure (P-Druck) | Piezoresistive | -48 ... +48 inH2O (-120 ... +120 hPa) | 0.001 inH2O (1 Pa) | ± 0.008 inH2O or 1 % reading / ± 2 Pa or 1 % reading |
| Flow velocity measurement (v) | Pitot | 3 ... 100 m/s | 0.1 m/s | ± 1 m/s or 1 % reading |
| Standardized ext. signal (AUX connection) | Software | for K-thermocouple, 0 ... 10 Vdc, 4 ... 20 mA, RS 485 | | |
| Combustion calculations (fuel type depend.) | Software | Losses, Excess Air, Air Ratio, dew point, CO2 | | |
| Emissions calculations | Software | mg/Nm3, reference to O2 | | |

| General technical data | |
|--------------------------------------------|------------------------------------------------------------------------------------------------|
| Operating system | LINUX |
| Display, operation | 7" TFT (800 x 480 px) color display, back-lit, with touch pad |
| Data storage type | Dynamic, internally 10,000 data sets, external USB stick |
| Interface to PC/notebook | Ethernet, WiFi, RS 485 |
| Cable/wireless communication interface | RS 485, RJ45 (Ethernet), WiFi, Bluetooth |
| Printer | External USB/WiFi printer |
| Analog output/input 4 ... 20 mA | 8 channel out, 4 channel in, user configurable |
| Universal analog input (AUX) | 0 ... 10 Vdc, 4 ... 20 mA, NiCrNi-thermocouple, RS 485 |
| System warm-up time | 30 minutes, typical |
| Mains free operation time | Li-Ion, 48 Wh, for standby 1 hour (optional additional battery, 48 Wh Li-Ion) |
| Operating conditions / Storage temperature | 41 ... 113 °F (+5 ... +45 °C); RH up to 90 % non-condensing / -4 ... 122 °F (-20 ... +50 °C) |
| Power supply | 86 ... 265 Vac, 47 ... 63 Hz, 105 W (up to 600 W with heated gas sample line) |
| Protection class | IP20 (or IP42 inside transport case) |
| Dimensions (W x H x D) | 16.92" x 11.41" x 5.90" (430 x 290 x 150 mm) |
| Weight | Approx. 17.6 lbs. (8 kg) only device, approx. 28.6 lbs. (13 kg) packed in bag with accessories |



MRU Instruments, Inc.
Humble, TEXAS 77396 USA
Tel.: +1 (832) 230-0155
Info@mru-instruments.com
www.mru-instruments.com

MRU Representative: